ABSTRAK

Analisis Tingkat Paparan Radiasi Di Area Setinggi Mata Dokter Operator Selama Pemeriksaan Diagnostik *Coronary Angiography* Di Ruang *Cathlab* Instalasi Diagnostik Dan Intervensi Kardiovaskuler RSUD Dr. Soetomo Surabaya

Devi Aprilia Primaningtyas[1], Soegardo Indra P.[2], Lailatul Muqmiroh[3].

Kardiologi Intervensi merupakan salah satu tindakan intervensional. Paparan radiasi pada kardiologi intervensi dapat memberikan efek biologis pada pasien dan pekerja yaitu efek deterministik dan stokastik. Salah satu organ yang menerima kemungkinan efek deterministik adalah mata. Untuk mengetahui kemungkinan katarak tersebut adalah melakukan pengukuran tingkat paparan radiasi di area setinggi mata pekerja radiasi dengan menggunakan alat ukur radiasi. Oleh karena itu, peneliti ingin mengetahui besar tingkat paparan radiasi di area setinggi mata dokter operator selama pemeriksaan diagnostik *coronary angiography* di ruang *cathlab*.

Penelitian ini dilakukan di ruang *Cathlab* pada pesawat *Angiography* GE Innova 2100 IQ menggunakan alat ukur survey meter *Thermo Scientific* FH 40 G-L dengan faktor kalibrasi 1,15. Pengambilan data dilakukan dengan cara melakukan pengukuran tingkat paparan radiasi di area setinggi mata dokter operator dengan menggunakan survey meter secara langsung pada satu titik posisi dokter operator dengan jarak 80 cm dari sumber radiasi dan setinggi mata dokter operator dengan jarak 150 cm dari lantai diukur menggunakan *convex scale*. Pengukuran dilakukan pada variasi proyeksi selama pemeriksaan *diagnostic coronary angiography* antara lain: PA-Cranial, LAO-Cranial, LAO-Caudal, RAO-Cranial, RAO-Caudal, RAO, dan LAO. Selain itu, peneliti juga mengambil data penunjang pada workstation GE 2100 IQ berupa data pemeriksaan *diagnostic coronary angiography* mulai bulan Mei hingga 13 Juni 2016.

Pengukuran tingkat paparan radiasi di area setinggi mata dokter operator selama pemeriksaan *diagnostic coronary angiography* didapatkan pada sampel A sebesar 15,34 µSv selama 69,17 detik (1 menit 9,17 detik dan sampel B sebesar 25,11 µSv selama 46 detik. Pada data penunjang dalam pemeriksaan *diagnostic coronary angiography* bulan Mei-13 Juni 2016 diperoleh 9 data pemeriksaan *diagnostic coronary angiography* pada dua operator berbeda (7 pasien operator A, 2 pasien operator B). Data tersebut menunjukkan total dosis, DAP (*Dose Area Product*) dan *fluoroscopy time* pada operator A lebih tinggi dibandingkan dengan operator B. Dari hasil tersebut didapatkan bawa tingkat paparan radiasi di area setinggi mata dokter operator selama pemeriksaan *diagnostic coronary angiography* yang diperoleh tidak melebihi dari Nilai Batas Dosis (NBD) yaitu 75 µSv/jam. Selain itu, Waktu fluoroskopi yang diperlukan lebih cepat dibandingkan dengan data pemeriksaan pada bulan Mei-13 Juni 2016. Dan selama pemeriksaan *diagnostic coronary angiography*, dokter dan tim selalu menggunakan alat proteksi diri seperti apron, pelindung tiroid, kacamata Pb, dan kaca tabir.

Kata kunci: paparan, tingkat paparan, paparan radiasi, radiasi area mata, radiasi intervensi.

[1] Mahasiswa D IV Radiologi Universitas Airlangga

[2] Staff dosen pengajar D IV Radiologi Universitas Airlangga, Staff dosen pengajar STIKES RSUD Dr. Soetomo Surabaya

[3] Kepala Program Studi D IV Radiologi Universitas Airlangga, Staff Radiologi RS Husada Utama Surabaya

ABSTRACT

Analysis Of Radiation Exposure In The Area Of Physician Eye –Level During Diagnostic Coronary Angiography Examination In Cathlab Installation Diagnostic And Cardiovasculer Intervension At RSUD Dr.Soetomo Surabaya

Devi Aprilia Primaningtyas[1], Soegardo Indra P.[2], Lailatul Muqmiroh[3].

Intervention Cardiology is one of interventional examination. The radiation exposure of interventional cardiology can provide biological effects on patients and workers that is deterministic and stochastic effects. One organ that accepts the possibility of deterministic effects are the eyes. To find out the possibility of cataracts is measuring the level of radiation exposure in the area of radiation workers at eye level using of radiation measuring devices. Therefore, researchers want to know the level of radiation exposure in the area of physician eye-level during diagnostic coronary angiography examination in cathlab.

This research was conducted in Cathlab using an Angiography GE Innova 2100 IQ and a measuring instrument survey meter Thermo Scientific FH 40 G-L with a calibration factor of 1.15. Data retrieval is done by measuring the level of radiation exposure in the area of physician eye-level using a survey meter directly at the physician position with a distance of 80 cm from the radiation source and a physician eye-level with a distance of 150 cm from the floor was measured using a convex scale , Measurements were made on the variation of the projection during diagnostic coronary angiography examination, among others: PA-Cranial, LAO-Cranial, LAO-Caudal, RAO-Cranial, RAO-Caudal, RAO and LAO. In addition, researchers also obtained data on a workstation supporting GE 2100 IQ in the form of diagnostic coronary angiography examination data from May to June 13th, 2016.

Measuring the level of radiation exposure in the area at physician eye-level during diagnostic coronary angiography obtained on sample A of 15.34 µSv for 69.17 seconds (1 minute 9.17 seconds and sample B of 25.11 µSv for 46 seconds. In the data support in the examination of diagnostic coronary angiography in May-June 13th, 2016 gained 9 inspection data diagnostic coronary angiography at two different operators (7 patients operator A, 2 patients operator B). The data show that the total dose, DAP (dose Area Product) and fluoroscopy time, the operator A is higher than the operator B. from the results obtained bring the level of radiation exposure in the area of physician eye-level during diagnostic coronary angiography examination obtained does not exceed the dose limit value (NBD) is 75 µSv / h. in addition, time fluoroscopy is needed faster than the inspection data in May-June 13, 2016. and during diagnostic coronary angiography examination, the doctor and his team always use self-protection tools such as apron, thyroid protectors, goggles, and glass veil.

Keywords : exposure, exposure level, radiation exposure, radiation of the eye, radiation intervention.

[1] Student of Diploma IV Radiology at Airlangga University.

[2] Faculty of Diploma IV Radiology at Airlangga University and at STIKES RSUD Dr. Soetomo Surabaya.

[3] Head of Diploma IV Radiology at Airlangga University and Staff of Radiology at Husada Utama Hospital Surabaya.